0 LuxShot: Technique allowing pictures to be shot without visible light. The camera is switched to its infrared sensitivity mode and infrared lighting (built-in to Sony IR sensitive cameras) is used to illuminate the scene. As the picture is only infrared, no significant color information is displayed. The picture looks slightly greenish, like an image intensifier picture. NOTE: In 0 LuxShot mode, the iris remains in a fully open position, and the high-speed shutter feature does not function.

4:4:4 / 4:2:2 / 4:1:1: Indicates the sampling applied to the Y/R-Y/B-Y components of an analog video signal when it is converted into a digital signal. The three numbers indicate the ratio of the sampling rates applied to the individual signals. 4:4:4 indicates that the same sampling rate has been applied to all three signals, 4:2:2 means that the sampling rate of the R-Y and B-Y color difference signals is half that of the luminance signal Y, while 4:1:1 indicates that the sampling rate is one quarter that of the Y signal.

AE (Auto Exposure): Combined use of AGC and iris motor control allows shooting in a broad range of lighting conditions. AGC amplifies the video signal in low light conditions, iris reduces it in high light conditions. Motor iris control can be replaced by the CCD IRIS control.

AF (Auto focus): Available in cameras equipped with motorized focus, this feature provides automatic adjustment of the focus. AF operates by varying the focus to maximize the high frequency content of the central area of the picture by reference to high luminance and strong contrast elements. In some cameras, AF can be set to High or Low sensitivity modes. AF mode is not recommended for continuous 24-hour operation. See also One-push AF, Interval AF, Zoom triggered AF.

AGC (Automatic Gain Control): Circuitry that automatically adjusts the electronic amplification of the video signal to compensate for varying levels of scene illumination.

Aliasing: Interference phenomenon which occurs when a sampled signal contains frequencies that are higher than half the sampling frequency. A CCD samples the picture spatially. An optical low-pass filter is used to avoid aliasing, especially in color applications.

Aperture correction: Camera signal processing function which adjusts the enhancement of edges of objects in a picture.

Aspect Ratio: The ratio of width over height of an image, 4:3 for a standard TV image, 16:9 for wide screen.

Asynchronous transmission mode: IEEE 1394 data transmission mode without a guaranteed data delivery time. Used in IEEE 1394 cameras for control functions and reports.

ATW (Auto Tracking White balance): In ATW mode, white balance is continuously being adjusted according to the color temperature of the scene illumination.

Backlight compensation: Special compensation option in AE (Auto Exposure) mode. When the background is too bright and/or when the subject is too dark, backlight compensation modifies the action of Auto Exposure to make the subject appear clearer.

Bayonet mount: Type of camera mount in which there is 38 mm or 48 mm clearance between the lens rear mounting surface and the camera’s CCD.

Black stretch / Black Compress Control: A function of Digital Signal Processing technology that enables the contrast of the black area of an image to be variable adjusted. The black stretch function emphasizes contrast in the dark areas while black compress enhances or deepens darkness.

CCD (Charge Coupled Device): Semiconductor device made of a matrix (or lines) of individual photosensitive elements, called pixels. The optics focus the scene onto the matrix and each pixel accumulates an electric charge proportional to the local intensity of received light and to the integration time. At read out time, all charges are transferred at the same time to an output matrix protected from light, where a sequential reading may take place while a new picture starts integrating. The output matrix size is half that of the sensitive matrix size for interlaced mode CCDs, and the same size for progressive scan CCDs.

CCD IRIS: Special operating mode of the electronic shutter of a CCD camera. The shutter timing is automatically adjusted to maintain the same video output level, irrespective of the scene illumination. Can only reduce the camera sensitivity. Allows the use of a fixed iris lens under variable lighting conditions. Often combined with AGC.

CCIR: B/W video standard with 625 lines / frame, 2 interlaced fields / frame, 25 frames / second. Monochrome version of PAL.

CCU (Camera Control Unit): The CCU provides a means of controlling a remote camera. So that the remote camera can be as small and light as possible, the CCU also includes all electronic circuits that do not have to be fitted inside the remote head, these are typically signal processing circuitry, input/output interfaces and power supply.

Chrominance: Color part of the composite video signal. Also called C. Separately transmitted in Y/C (S-video). It is the combination of the two color difference signals (U or R-Y) and (V or B-Y) modulated on to a subcarrier. See also YUV.

CHU (Camera Head Unit): In a remote head camera system, the CHU is a small unit that only includes the sensor, its optical interface, the cable coupling to a CCU and the minimum amount of electronic circuitry.

C-Mount: Type of camera mount where in which there is 38 mm or 48 mm clearance between the lens rear mounting surface and the camera’s CCD.

Composite sync: Combination of the HD and VD in one signal. Commonly used as a synchronizing or genlock signal in B/W systems.

Depth of field: Distance between the nearest and farthest points in a scene that are in focus as viewed by a particular lens. Affected by choice of lens focal length and iris aperture. Increases with both decreasing lens focal length and decreasing iris aperture.

Donpisha: Means “immediate” in Japanese. CCD sensor shuttering technology for asynchronous shooting of fast moving objects without a time delay.

DSP (Digital Signal Processing): Inside a camera, sensor signals must be processed in several steps before they can be displayed / transmitted. Typical processing steps are amplification, gamma correction, black level correction, highlight compression/clipping, edge enhancement, color processing, color balance, color correction, output signal encoding. Picture quality is highly dependent on the accuracy and the stability of these processes. In DSP technology, the sensor signal is converted to digital form after initial amplification, and all processing is achieved digitally, ensuring high quality and no drift. Output signals remain in digital form or are converted back to analog depending on the camera output mode.

DynaLatitude Process: A unique feature function available when using Digital Signal Processing (DSP) technology. It maintains the contrast of each pixel according to a histogram of video signal level distribution in order to utilize the limited dynamic range of the video signal standard. This function is used in the DXC-390/P camera.

Dynamic Contrast Control Plus (DCC+): A function of Digital Signal Processing (DSP) technology that virtually eliminates hue factor distortion – phenomenon that is particularly obvious in extreme high light conditions. The DCC+ function manages video signal data at three levels – brightness, hue and saturation that results in reproduced images with suitable knee correction while virtually eliminating hue factor distortion. This function is used in the DXC-390/P camera.

E-Donpisha - II: Asynchronous shutter mode. Available with external and internal synchronization modes. The camera CCD starts to accumulate electrons on receipt of an external trigger pulse. Shutter speed is selected by a switch or menu setting.

E-Donpisha: Enhanced asynchronous shutter. Available with external and internal synchronization modes. The camera CCD starts to accumulate electrons on receipt of an external trigger pulse. Shutter speed is selected by a switch or menu setting.

Electronic shutter: CCD camera operating mode where the integration time can be shortened without any mechanical device. Used for blur reduction when capturing fast moving objects, and for camera sensitivity reduction in high levels of scene illumination.

Exwave HAD technology: Technology with a nearly gapless OCL (On-chip-lens) located over each pixel of the CCD resulting in more than twice the sensitivity and 1/50 the smear compared to Hyper HAD technology.

F Stop, F Number: Calibrated measure of lens iris aperture. Common F stops are F1.4, F2, F2.8, F4, F5.6, F8, F11, F16, F22. The higher the number, the smaller the iris aperture and the less light falling on the imager.

Field: Half of a TV picture consisting of only the odd or only the even lines. There are three types of genlock: V-lock, HV-lock and full color.

Gain: A measure of the amplification or the amount of strengthening of the signal. There are three types of genlock: V-lock, HV-lock and full color.

Field / frame integration: Two different pixel readout techniques in CCDs designed for interfaced output. Refers to the total integration time, field duration (16.6 ms NTSC refresh or 20 ms PAL/CCIR) or frame duration (33.3 ms NTSC/EIA or 40 ms PAL/CCIR). Both modes give the same sensitivity.

Focal length: Distance between the optical center of a lens and the image focal point. Fixes the magnification and the angle of view of a lens. Vari-focal and zoom lenses have a variable focal length.

Frame: One complete TV picture consisting of two sequential interlaced scanned fields. NTSC/EIA has 30 frames of 525 lines per second. PAL/CCIR has 25 frames of 525 lines per second. Gain: The electronic amplification factor of a signal.

Gamma: Correction law introduced in the camera output signal to compensate for the non-linearity of the CRT (Cathode Ray Tube) in video monitors. A typical gamma value is 0.45, which results in the brightness component of the CRT picture appearing to be linear.

Genlock: Circuitry that synchronizes one video signal to another video signal. There are three types of genlock: V-lock, HV-lock and full color.

Iris: An adjustable sized aperture in a camera lens that controls the amount of light reaching the imager. Iris control may be either manual or automatic, depending on the application and the type of camera. Iris is fixed, a variable electronic shutter can be used instead (CCD iris).

Isochronous transmission mode: IEEE 1394 data transmission mode featuring guaranteed transmission timing and bandwidth. Appropriate for just-in-time transmission of video and audio and computer data.

Iris: An adjustable sized aperture in a camera lens that controls the amount of light reaching the imager. Iris control may be either manual or automatic, depending on the application and the type of camera. Iris is fixed, a variable electronic shutter can be used instead (CCD iris).

Lux (lux): The SI measurement of light intensity taken at the surface which the light source is illuminating. The measure of the total lumens falling upon a unit of area. 1 lumen per square meter. One Foot-candle equals 10.76 lux.

MOD (Minimum Object Distance): A lens parameter that defines the minimum distance from a camera lens to the point where an object can still be in focus.

MTF (Modulation Transfer Function): Defines the resolution capability of a lens. Most lenses exhibit their best MTF when operated in the middle of their iris aperture range.

ND Filter: A grey filter added in front of a lens to reduce the amount of incoming light into the camera lens. It has no influence on color.

One-push AF (One-push Auto Focus): Focus hold mode that can be automatically readjusted as required by the user (One-push AF Trigger) assuming that the required subject is within the focusing limits of the camera lens.
One-push WB (One-push White Balance): Fixed white balance mode that can be automatically readjusted as required by the user (One-push WB Trigger), assuming that a white object, in suitable lighting conditions and occupying more than half of the image area, is seen by the camera. PAL (Phase Alternation, Line): Color video standard pioneered in Europe but also used in many other parts of the world. PAL uses 625 scanning lines per picture, 25 pictures (frames) per second, each frame is made up of two sequential fields containing respectively the odd and the even lines (interlace).

Partial Enhance: An advanced function of the Digital Signal Processing (DSP) technology that allows a particular color to be selected and its hue, saturation and detail altered. This function gives the subject a pleasing complexion with a softer image while maintaining the sharpness of other areas, and vice versa. The designated active area of partial enhance can be set with the digital circuits by simply adjusting the Area Detect Cursor.

Pixel: Picture element.

PowerHAD: PowerHAD is further improvement of the Hyper HAD CCD technology, where the microscopic lenses focus more light onto the light sensors thus increased sensitivity and reduced smear.

Progressive Scan: CCD design that allows the acquisition of both odd and even fields at the same time. Progressive scan makes full vertical resolution possible in Donpisha mode.

RGB (Red, Green, Blue): The primary colors of light that produce a color video image. In video, RGB refers to a system in which these three primary colors are kept isolated and delivered from the source to the display device over separate wires. This system results in high-quality pictures. RGB signals are used in some broadcast video equipment and computers.

RS-232C: Serial data transmission standard for computers which can also be used to control camera functions.

Scalable scanning: Capability of a camera to output a picture corresponding to an user defined sub-zone of the sensor. Applied in IEEE 1394 digital cameras featuring the Format_7 output option (XC07X700, XCD-SX900).

Screen Mode: Partial see-through mode on HMD allowing the user to view the surrounding environment by adjusting the transparency of the screen in the area only around the picture.

SDK: Software Development Kit.

S-Donpisha: Asynchronous shutter mode used with external HD/VD sync. CCD starts to accumulate electrons when the external trigger pulse is received and stops when the VD pulse is received. Therefore the accumulation time (shutter speed) is decided by the length of time between the trigger pulse and VD input.

S/N (Signal to Noise Ratio): The ratio, usually expressed in dB (decibels), between the normal signal output and the noise level within an electronic signal.

Smeared: Undesirable artifact of CCDs that appears in the picture as a vertical streak above and below a very bright object in the scene. Smeared is caused by parasitic light getting into the vertical transfer registers. It is greatly reduced by the microlens-type of CCD used in Hyper HAD and Power HAD sensors. Almost suppressed in FIT CCDs.

Slow shutter: Shutter mode with an integration time longer than 1/50 s (PAL) or 1/60 s (NTSC). Like long-term integration, the slow shutter fraction increases camera sensitivity when shooting slow-moving or fixed subjects. Unlike long-term integration, continuous normal video is output in slow shutter mode by use of a built-in video memory. The output picture is compatible with normal monitors and recorders.

Square pixel: Used to qualify a CCD sensor where the centers of the pixels are equally spaced horizontally and vertically. Pictures captured from this type of non-square pixel sensor need to be software corrected in order to achieve the correct picture geometry.

Strobe Synchronization: This function is designed to capture fast moving, full frame images by firing a strobe light in a dark lighting condition. The camera synchronizes the timing of the external trigger and can output a full frame image. Using an external frame memory synchronized with the input of external trigger signal, the Write Enable (WEN) pulse is output. The use of the WEN pulse allows for easy capture of full frame still images. This function requires a frame grabber board.

Sync (Synchronization): When synchronized, the horizontal and vertical timing of a camera output are locked to an external signal coming, for example, from another camera. Picture outputs from both sources are then precisely synchronized and can be mixed. When mixing color signals, the subcarriers of the two signals also have to be in synchronism.

Subcarrier: The 4.43 MHz (PAL) or 3.59 MHz (NTSC) signal that is used as a carrier for the color information. This subcarrier is modulated in amplitude by the color saturation and in phase by the color hue. A sample of the unmodulated subcarrier is placed before the start of each horizontal line, and is called the Color Burst.

U and V: The names given to the two video color difference signals (R-Y and B-Y) in their coded form in the PAL or NTSC color systems. See also Y/R-Y/B-Y.

Ultra mount: Type of camera mount in which there is 6.7 mm clearance between the lens rear mounting surface and the camera’s CCD.

Video burst and Sync: The composite video signal, including color information.

VD (Vertical Drive): Signal used to synchronize the field rate of a camera to an external source. Mostly used in B/W together with HD (Horizontal Drive).

Vertical Resolution: Number of equally spaced horizontal black-to-white or white-to-black transitions that a camera is able to reproduce. Indicates the amount of vertical details that can be perceived. Vertical resolution is limited by the number of scanning lines that are fixed by the TV standard.

VISCA (Video System Control Architecture): RS-232C serial control protocol intended to interface up to seven items of video equipment on one computer link.

V-LOCK Sync: see Genlock.

VS (Video + Sync): The composite monochrome video signal commonly used as the genlock signal in B/W systems.

WB (White Balance): In a color camera, white balance is the process of adjusting the values of its color differences signals so that a white object in a scene illuminated by a particular source of illumination is displayed as a white or grey (i.e. no chrominance). The normal color reference illuminant has a color temperature of 3200 K, equivalent to a halogen lamp. The human eye is a subjective device, constantly readjusting its color balance according to the lighting context (our eye knows what must be seen as white). Unlike the human eye, a camera is an absolute measurement device, and its color balance has to be adjusted to suit the color temperature of the light illuminating the scene, for example sunlight is different from 3200 K. Several adjustment modes are available, fixed values (pre-adjusted), One-push, automatic tracking. See also One-push WB and ATW.

Y/C (also called S-Video): Separate signals for the Luminance and Chrominance parts of the video signal. Allows higher picture resolution and suppresses cross color effects. Connector is the 4-pin mini-DIN.

Y/R-Y/B-Y: Three signals, luminance (Y) and two color difference signals (R-Y and B-Y) in their coded form in the PAL or NTSC color systems. Y/C is different from 3200 K. Several adjustment modes are available, fixed values (pre-adjusted), One-push, automatic tracking. See also One-push WB and ATW.

Zoom Triggered AF: The camera is normally in fixed focus mode, but AF (Auto Focus) is temporarily switched on each time the zoom ratio of the camera lens is changed.